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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,741

04/15/2004

John N. Hryn

0003/01269

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04/15/2009

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EXAMINER

PHASGE, ARUN S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

04/15/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 1-3, 5-7, 9-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The section of the specification cited to show support for the recitation that the stack operation range of from pH 3 to pH 10, fails to describe such an operation range. The values for pH are from specific uses of salt/acid buffering agents and do not convey the claimed limitation presently recited in the claim.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5-7, 9-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Genders applied of record for reasons of record and further in view of Scheder of record.

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The Genders patent fails to disclose that the electrodialysis stack is maintained between pH 3 and pH 10. The Scheder patent is cited to teach that when separating some proteins, the pH of the stack should be between 4-5 (see figures 1-2 and examples 15 in columns 4-5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Genders by the teachings of Scheder.

One having ordinary skill in the art would have been motivated to do this modification, because the Scheder patent teaches that one having ordinary skill in the art would want to maintain a low pH within the claimed range to prevent the precipitation of proteins during electrodialysis.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that the invention calls for buffering product and byproduct solutions and that Genders uses no buffers. Contrary to this reading of the reference, the Genders patent teaches the use of a sodium bi-sulfate/sodium sulfate buffer to allow the complete conversion of the sodium ascorbate to ascorbic acid (see col. 5, lines 15-26).

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Applicants again argue that “Genders does not add a buffer to control the pH of the product (acid) solution. As stated above, the use of the sulfate buffer, buffers the pH and allows the “complete conversion” of the acid (col. 5, lines 15-26). It is unclear how a statement that the sulfate couple acts to buffer a solution can be said to not be the addition of a buffer to control the pH of the acid solution.

Applicants’ further state that Genders adds no buffer to control the pH of the base compartments which is why the pH increases from 13.7 to 14.3. The Genders patent teaches that the catholyte compartment or base compartment may comprise a base which is added at the time of start-up, such as carbonate/bicarbonate which is a well known buffer couple (see col. 5, lines 49-62).

Applicants further attempt to distinguish the claimed invention from the prior art by stating that Genders requires extreme pH and that the instant invention would maintain the operating pH range around 3-10.

As stated above, there is no written basis in the specification that demonstrates that applicants had possession of such a claimed embodiment. The specification merely recites the ranges of pH that particular buffers maintain.

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Applicants' further argue that, "It is noteworthy that Genders could not envision the new limitations now cited because Genders never experienced the effect which requires the fix the limitations embody. Flowrates of solution in a small stack are too high relative to the amount of electric current (as ion flow) that passes through the stack, and it is the current that leads to a change in pH of the solution. No one who uses small stacks, including Genders, has used (or needs) buffers to control pH within electrodialysis stacks because the need for pH control within small stacks does not exist."

As stated above, Genders discloses the use of salt couples that "buffer the solution pH". Therefore, applicants' argument to the size of the apparatus is moot, because the patent teaches the use of buffers to control pH, contrary to applicants' allegations above.

In any event, the Scheder patent teaches the use of buffers in both the acid or anode compartment and base or cathode compartments to maintain the pH within the entire stack within a set range to prevent the precipitations of proteins within the electrodialysis stack.

Accordingly, the claims are rejected.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun S. Phasge whose telephone number is (571) 272-1345. The examiner can normally be reached on MONDAY-THURSDAY, 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arun S. Phasge/
Primary Examiner, Art Unit 1795

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